

**HONG KONG OBSERVATORY**

Technical Note No. 99

CLIMATOLOGY OF TAI PO KAU  
1991-1998

by

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## 摘要

本報告是大埔滘自動氣象站在 1991 - 1998 期間的氣候摘要。除列出標準氣候圖表外，亦將大埔滘的紀錄與橫瀾島的風紀錄及天文台的氣溫紀錄作出比較。

## Abstract

This note gives a climatological summary for Tai Po Kau Automatic Weather Station during 1991-1998. In addition to standard climatological tables and diagrams, comparisons of wind with Waglan Island and temperature with Hong Kong Observatory are also made.

## CONTENTS

	page
FIGURES	v
TABLES	vi
1. INTRODUCTION	1
2. HISTORY OF THE STATION	1
3. DATA	1
4. INSTRUMENTS AND METHODS OF OBSERVATION	
(a) Air temperature, dew point and relative humidit	2
(b) Wind	2
5. ANALYSIS	
(a) Climatological Summary	3
(b) Monthly and annual wind roses	3
(c) Diurnal variation of wind	3
(d) Hourly means of meteorological elements	3
(e) Gust factor	4
(f) Extreme values of temperature and gust	4
(g) Comparison of wind with Waglan Island	5
(h) Comparison of temperature with Hong Kong Observatory	5
ACKNOWLEDGEMENT	6
REFERENCES	7

## FIGURES

	page
1. Location of Tai Po Kau Automatic Weather Station	8
2. Locations of weather stations	9
3. (a) The anemometer mast on the roof of the Marine Police Station looking towards the southwest.	11
(b) The screen box at the entrance of the Marine Police Station facing the southeast	11
4. Annual wind rose for Tai Po Kau, 1991-1998	13
5. Monthly wind roses from January to June for Tai Po Kau, 1991-1998	14
6. Monthly wind roses from July to December for Tai Po Kau, 1991-1998	15
7. Hourly vector mean wind from January to June at Tai Po Kau, 1991-1998	16
8. Hourly vector mean wind from July to December at Tai Po Kau, 1991-1998	17
9. Diurnal variation of air temperature at Tai Po Kau, 1991-1998	18
10. Diurnal variation of wet-bulb temperature at Tai Po Kau, 1991-1994	19
11. Diurnal variation of dew point at Tai Po Kau, 1991-1994	20
12. Diurnal variation of relative humidity at Tai Po Kau, 1991-1994	21
13. Frequency distribution of the difference in hourly mean wind directions between Tai Po Kau (TPO) and Waglan Island (WGL), grouped according to the wind direction at Waglan Island	22
14. Comparison of daily maximum, minimum and mean temperatures between Tai Po Kau and the Observatory	23

## TABLES

	page
1. CLIMATOLOGICAL SUMMARY FOR TAI PO KAU, 1991-1998	24
2. PERCENTAGE FREQUENCY OF OCCURRENCE OF HOURLY WIND DIRECTION AND SPEED WITHIN SPECIFIED RANGES AT TAI PO KAU, 1991-1998	26
3. HOURLY VECTOR MEAN WIND AT TAI PO KAU, 1991-1998	28
4. HOURLY MEAN OF AIR TEMPERATURE AT TAI PO KAU, 1991-1998	29
5. HOURLY MEAN OF WET BULB TEMPERATURE AT TAI PO KAU, 1991-1994	30
6. HOURLY MEAN OF DEW POINT AT TAI PO KAU, 1991-1994	31
7. HOURLY MEAN OF RELATIVE HUMIDITY AT TAI PO KAU, 1991-1994	32
8. EXTREME VALUES OF TEMPERATURE AND GUST AT TAI PO KAU, 1991-1998	33

## 1. INTRODUCTION

Automatic weather stations were set up in Hong Kong to meet increasing demands for regional meteorological data for engineering projects in areas under development and to improve weather services. There are 27 such stations in operation at present. Tai Po Kau Automatic Weather Station, closed now, was operating for more than 8 years. This note is to give a climatological summary for this station.

## 2. HISTORY OF THE STATION

Tai Po Kau Automatic Weather Station (22°26'35" N , 114°10'50" E) was in operation between 22 August 1990 and 17 December 1998. It was located at Tai Po Kau Base of Marine Police as shown in [Figures 1 and 2](#). The station was sheltered to the north, south and southwest by hills and most exposed to the east and southeast. There is also a channel between Tai Mo Shan and Tai To Yan to the west of the station.

The high hills around the station are :

Tai Mo Shan	(957 m)	7 km to WSW
Grassy Hill	(647 m)	4 km to SSW
Pat Sin Leng	(511 m)	7 km to NE
Wong Leng	(639 m)	6 km to NNE
Kau Lung Hang Shan	(440 m)	4 km to NNW
Tai To Yan	(565 m)	7 km to W

## 3. DATA

The data used in this note are hourly records measured at Tai Po Kau Weather Station between January 1991 and December 1998. A total of 67703 observations was loaded into the Oracle database of the Hong Kong Observatory and analyzed using SQL (Structured Query Language). It should be noted that there are periods of incomplete data due to equipment or transmission failure.

#### 4. INSTRUMENTS AND METHODS OF OBSERVATION

At automatic weather stations, measurements of dry-bulb and wet-bulb temperatures, dew point, relative humidity and wind are recorded by automatic instruments and data are transmitted to the Hong Kong Observatory at one-minute intervals via telephone circuits. [Figures 3\(a\)](#) and [\(b\)](#) show the instruments at Tai Po Kau. The following paragraphs describe the instruments and methods of observation used during the years 1991-1998.

(a) Air temperature, dew point and relative humidity

A Stevenson screen box was installed on the grassland near the entrance of the Marine Police Station. Dry-bulb and wet-bulb temperatures were measured by platinum resistance thermometers with its sensing elements placed in the screen box. The elevation of the thermometers was 5.4 m above mean sea level.

Values of dew-point temperature and relative humidity were calculated from the dry-bulb and wet-bulb temperatures. However, the measurement of wet-bulb temperature ceased after June 1995.

Daily maximum and minimum temperatures were extracted from 1-minute data in each day.

(b) Wind

Winds were measured with a Teledyne Geotech WS201 cup anemometer on the roof of the Police Station with its head 27.6 m above mean sea-level. Hourly mean wind was computed from the 1-minute data in the hour (Yeung et al 1987).



## 5. ANALYSIS

### (a) Climatological Summary

Monthly values of meteorological elements are summarized in [Table 1](#). Readers are reminded that data are subject to loss because of equipment or transmission failure.

### (b) Monthly and annual wind roses

The total number of occurrences of concurrent wind speed and direction is computed for each month. Wind directions are grouped into ranges of 30° and wind speeds in m/s into categories as follows : 0.1-3.2, 3.3-8.2, 8.3-14.2 and >14.2. The percentage frequencies are shown in [Table 2](#) and are plotted in the form of wind roses in [Figures 4-6](#).

It can be seen that the most frequent and prevailing wind direction is easterly. It is worth noticing that a considerable proportion of wind comes from the west, probably due to orographic effect.

### (c) Diurnal variation of wind

Hourly vector mean winds are computed for each month. These are shown in [Table 3](#) and plotted in [Figures 7-8](#). A study of the sea-land breeze system in Hong Kong (Zhang and Zhang 1997) shows that sea breeze near Tai Po Kau generally blows from the east and land breeze from the northwest. Prevailing easterlies are thus enhanced in the afternoon and moderated during nighttime and morning throughout the year. In winter during October - January, the drop of wind speed during nighttime and morning is so significant that it becomes light and wind direction becomes variable.

### (d) Hourly means of meteorological elements

Hourly means in each month for the following elements are shown in [Tables 4-7](#) and are plotted in [Figures 9-12](#).

- (i) air temperature
- (ii) wet-bulb temperature
- (iii) dew point
- (iv) relative humidity

(e) Gust factor

Gust factor is defined as the ratio of hourly instantaneous maximum gust to hourly mean wind. Using the regression equation of gust(G) on hourly mean wind(M), gust factor(GF) can be obtained.

If the regression equation is written as

$$G = a M + b$$

then  $GF = a + b/M$

Regression equations for winds in different quadrants and their corresponding gust factors are shown below :

- $G = 1.40 M + 1.40$  ,  $r=0.91$  ( direction between  $050^\circ$  and  $130^\circ$  , east )
- $G = 1.97 M + 0.98$  ,  $r=0.83$  ( direction between  $140^\circ$  and  $220^\circ$  , south )
- $G = 1.55 M + 1.47$  ,  $r=0.87$  ( direction between  $230^\circ$  and  $310^\circ$  , west )
- $G = 1.59 M + 1.51$  ,  $r=0.89$  ( direction between  $320^\circ$  and  $040^\circ$  , north )

where r is the correlation coefficient.

Hourly mean wind (m/s)	Gust factor			
	East	South	West	North
5	1.68	2.17	1.84	1.89
10	1.54	2.07	1.70	1.74
15	1.49	2.04	1.65	1.69
20	1.47	2.02	1.62	1.67

(f) Extreme values of temperature and gust

The top 20 extreme values of maximum and minimum temperatures, and maximum gust are listed in [Table 8](#). The extreme values recorded at the Hong Kong Observatory during the same period are also given on the last line for comparison.

Extreme maximum temperatures were due to subsidence ahead of tropical cyclones or prolonged fine weather brought about by ridges. Extreme minimum temperatures were due to cold surges in winter times.

The occurrences of maximum gusts were recorded during the passage of tropical cyclones. They were Brendan, Fred, Koryn, Tasha, Sibyl, Sally and Victor in July 1991, August 1991, June 1993, August 1993, October 1995, September 1996, and August 1997 respectively.

(g) Comparison of wind with Waglan Island

Differences in wind direction between Tai Po Kau (TPO) and Waglan Island (WGL), grouped by four quadrants (as in (e) above), are measured with the angle veering or backing from the prevailing wind direction recorded at Waglan Island. These differences are shown in [Figure 13](#). For the east, south and west quadrants, the distributions are almost single-peak and bell-shaped. Winds at Tai Po Kau most often veer 20 degrees from the easterlies at Waglan but back 30 degrees from the southerlies. There is no significant change in wind direction from prevailing westerlies. Two peaks are observed for the north quadrant, indicating that when winds at Waglan are northerlies, winds at Tai Po Kau would most often back 100 degrees and the second likely direction would veer 60 degrees from the northerlies.

Regression equations of hourly wind speeds at Tai Po Kau against those at Waglan Island in different quadrants with the speed at Waglan Island exceeding 5 m/s are shown below:

East	:	$V_{TPO} = 0.38 V_{WGL} - 0.02$	(r = 0.55)
South	:	$V_{TPO} = 0.26 V_{WGL} - 0.04$	(r = 0.46)
West	:	$V_{TPO} = 0.20 V_{WGL} + 0.50$	(r = 0.34)
North	:	$V_{TPO} = 0.19 V_{WGL} + 1.23$	(r = 0.35)

The linear relationships can only be regarded as fair, as reflected by the small values of correlation coefficients. The wind speed of Tai Po Kau is about 30 - 40% of that at Waglan Island with easterlies and northerlies and about 20 - 30 % from other directions.

(h) Comparison of temperature with Hong Kong Observatory

Regression equations of daily maximum, minimum and mean temperatures at Tai Po Kau against those at the Observatory (HKO) are shown below:

daily maximum temperature	:	$T_{TPO} = 1.03 T_{HKO} - 0.89$	(r = 0.99)
daily minimum temperature	:	$T_{TPO} = 1.06 T_{HKO} - 2.35$	(r = 0.99)
daily mean temperature	:	$T_{TPO} = 1.05 T_{HKO} - 1.67$	(r = 0.99)

Excellent linear relationships can be seen in the scatter diagrams with associated regression lines shown in [Figures 14](#).

Generally, the daily maximum temperature and daily mean temperature are almost the same as those of the Observatory in summer. On the other hand, the daily minimum temperature is about 1.5°C lower and the daily mean temperature is about 1°C lower in winter at Tai Po Kau.

## **ACKNOWLEDGEMENT**

The authors would like to thank Mr. W.K. Kwan for his valuable comments on reviewing this note.

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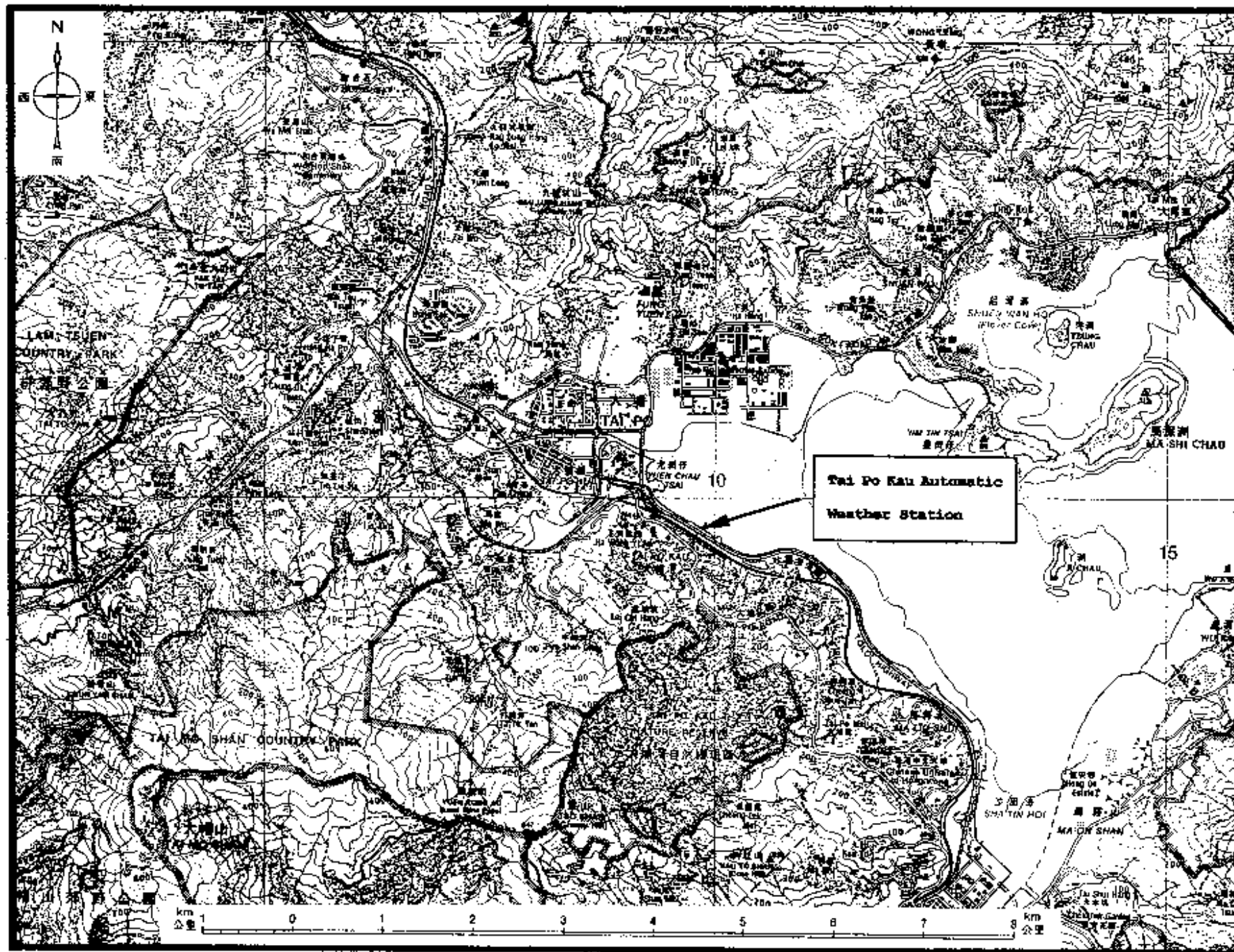


Fig. 1. Location of Tai Po Kau Automatic Weather Station

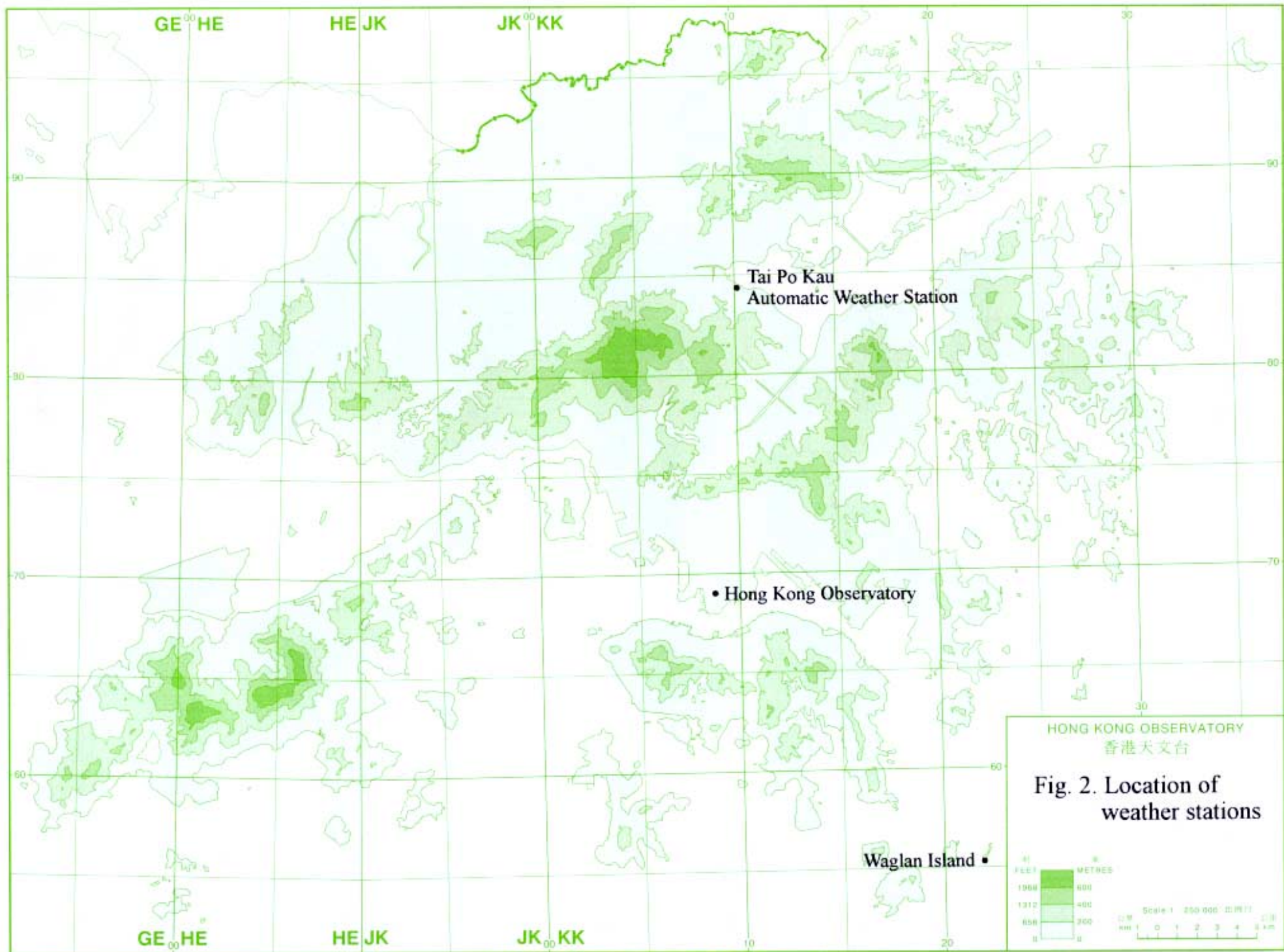




Fig. 3(a). The anemometer mast on the roof of the Marine Police Station looking towards the southwest.



Fig. 3(b). The screen box at the entrance of the Marine Police Station facing the southeast



# TAI PO KAU AUTOMATIC WEATHER STATION

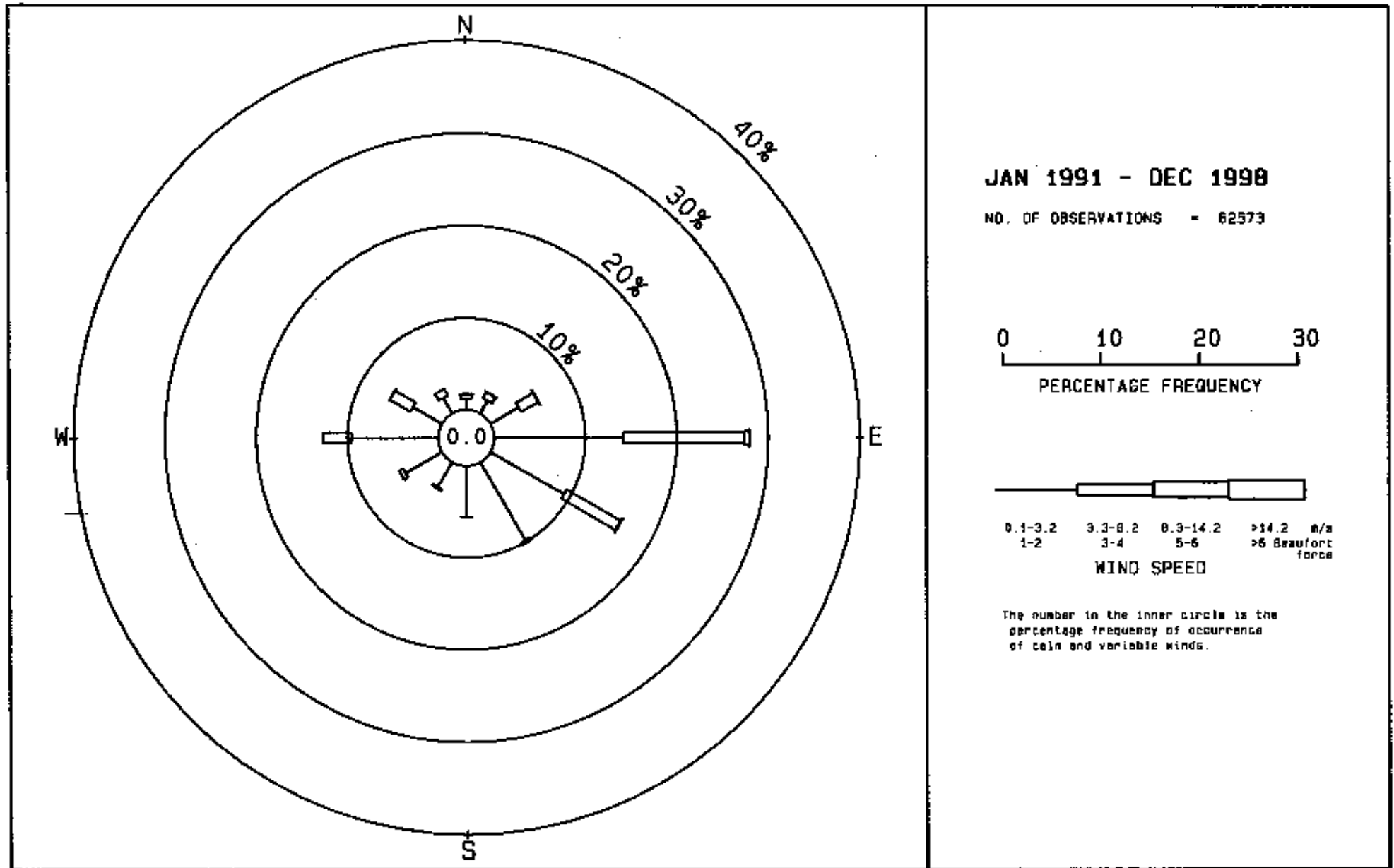


Fig. 4. Annual wind rose for Tai Po Kau, 1991 - 1998

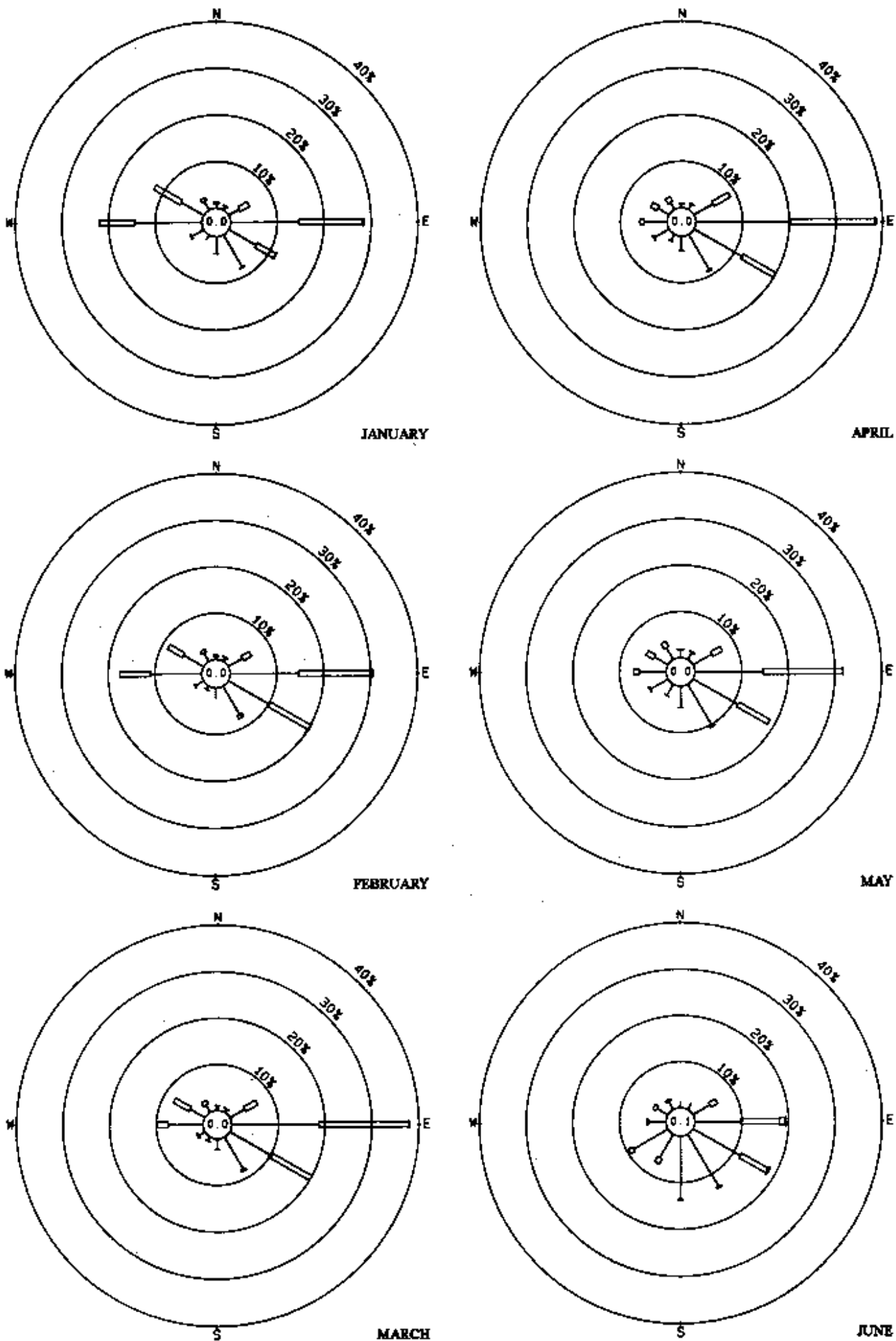


Fig. 5. Monthly wind rose from January to June for Tai Po Kau, 1991 - 1998

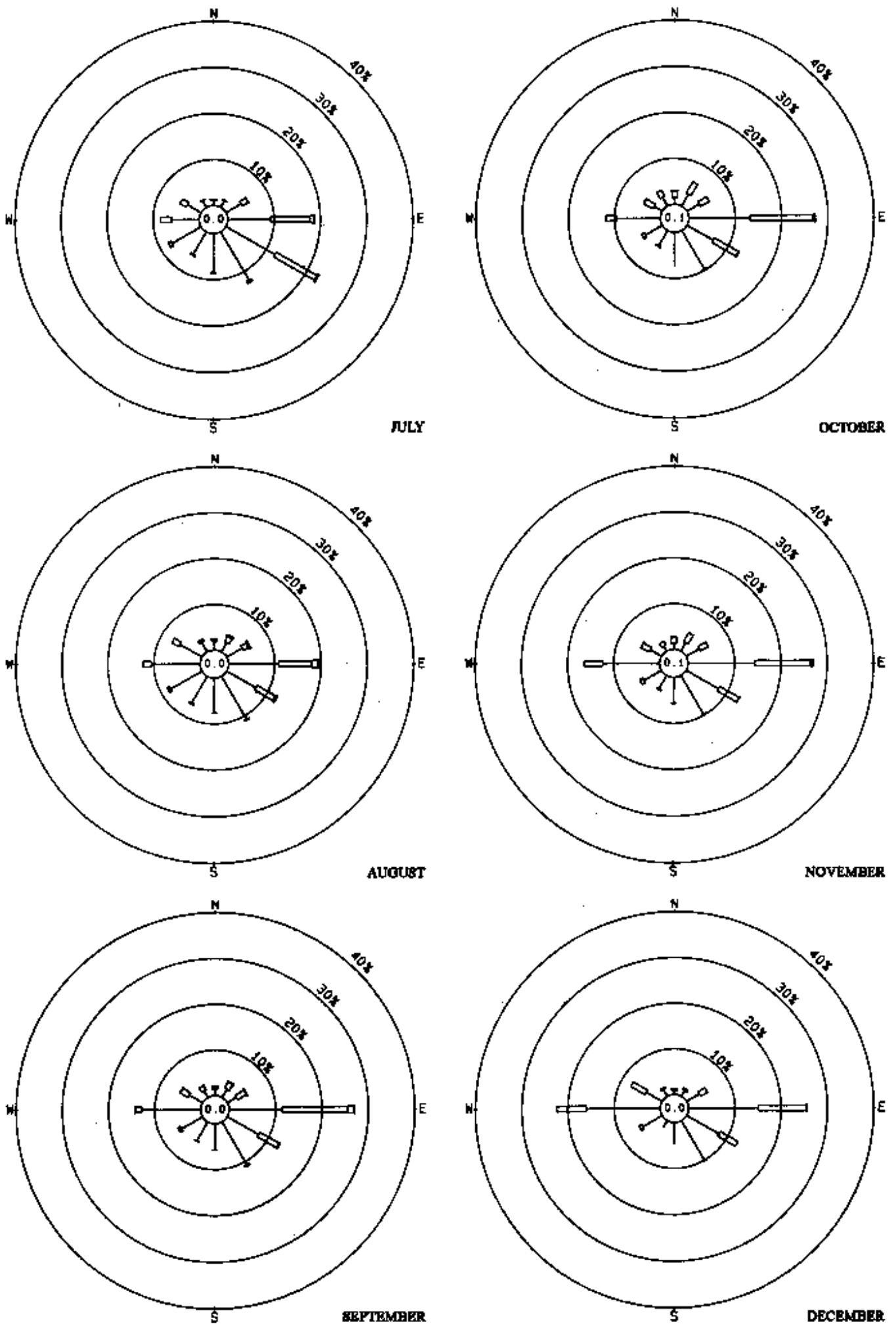


Fig. 6. Monthly wind rose from July to December for Tai Po Kau, 1991 - 1998

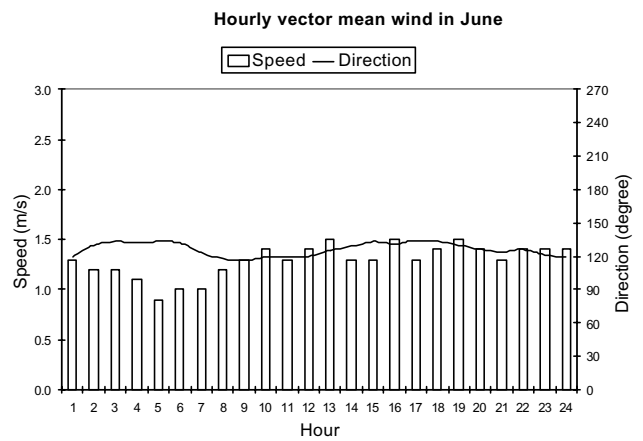
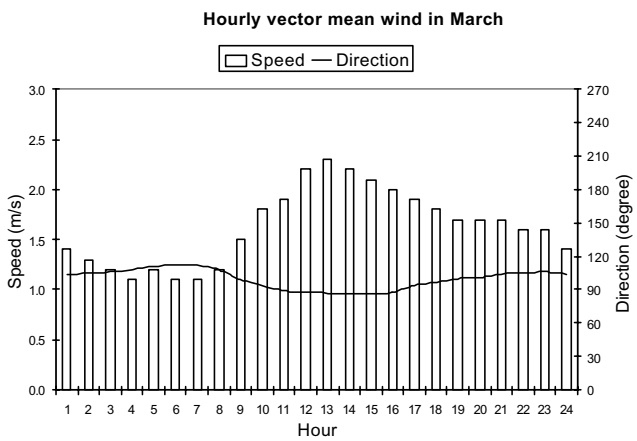
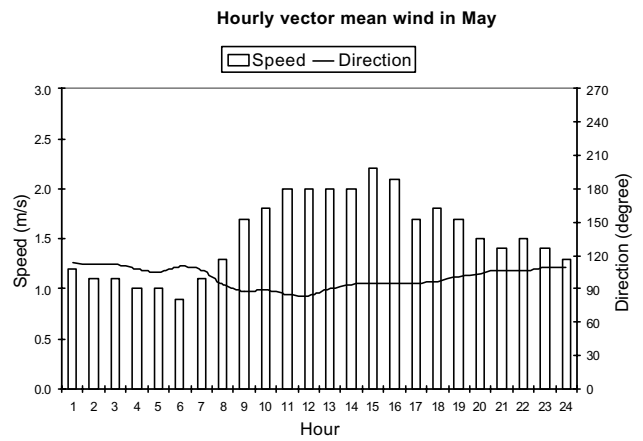
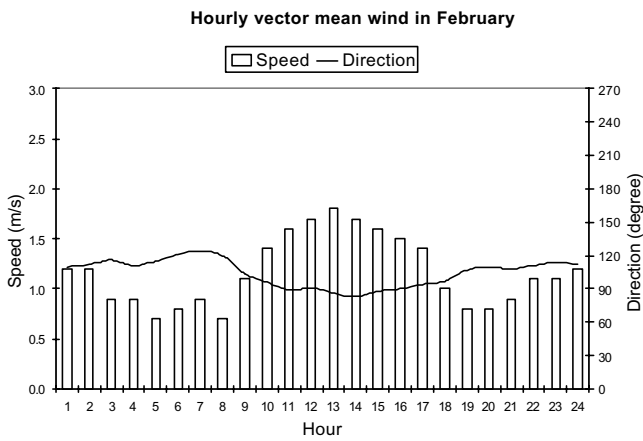
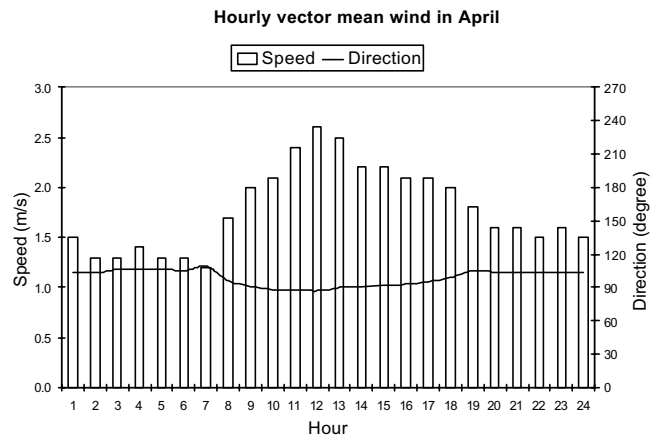
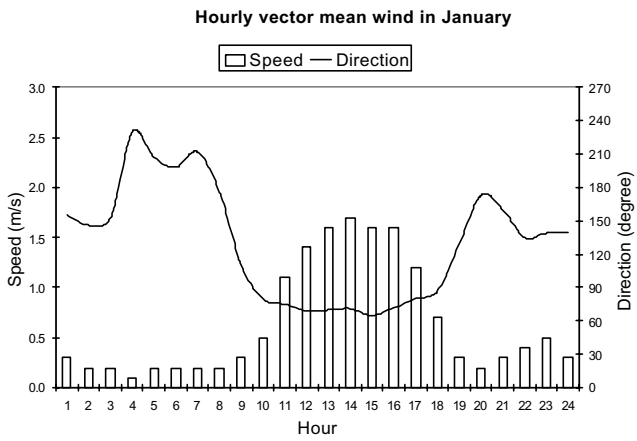


Fig. 7. Hourly vector mean wind from January to June at Tai Po Kau, 1991-1998

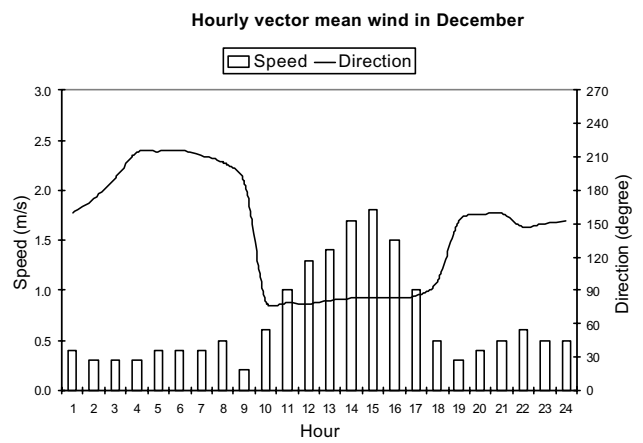
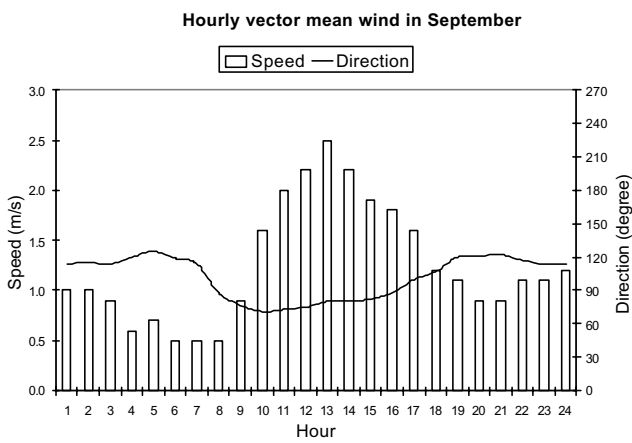
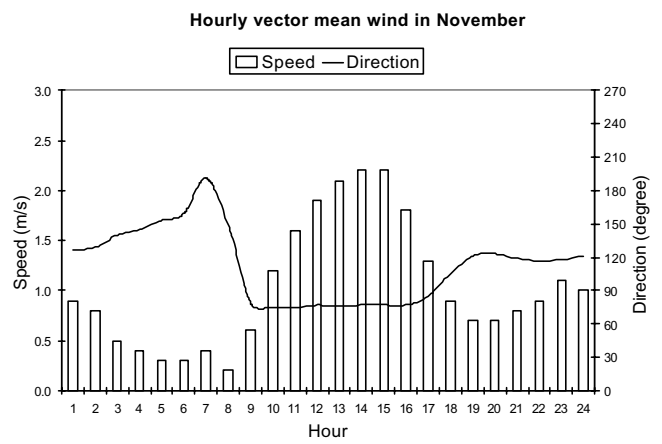
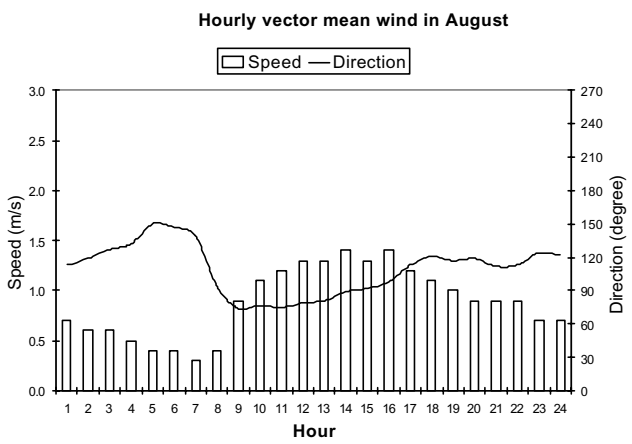
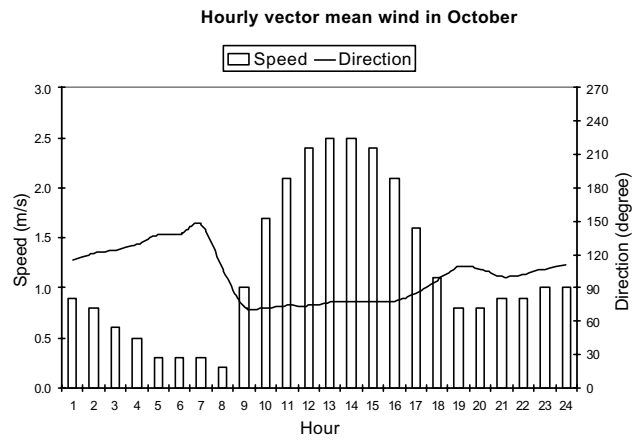
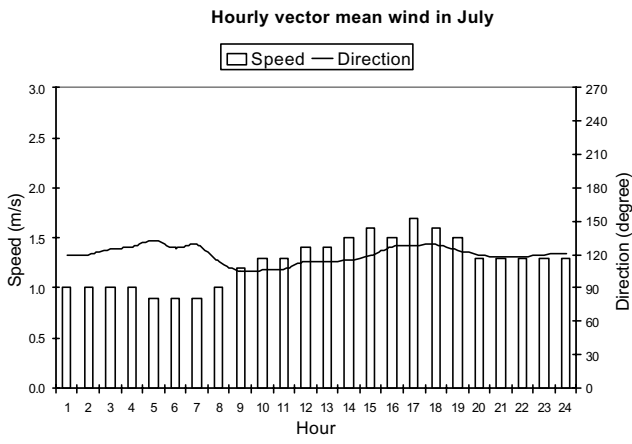


Fig. 8. Hourly vector mean wind from July to August at Tai Po Kau, 1991-1998

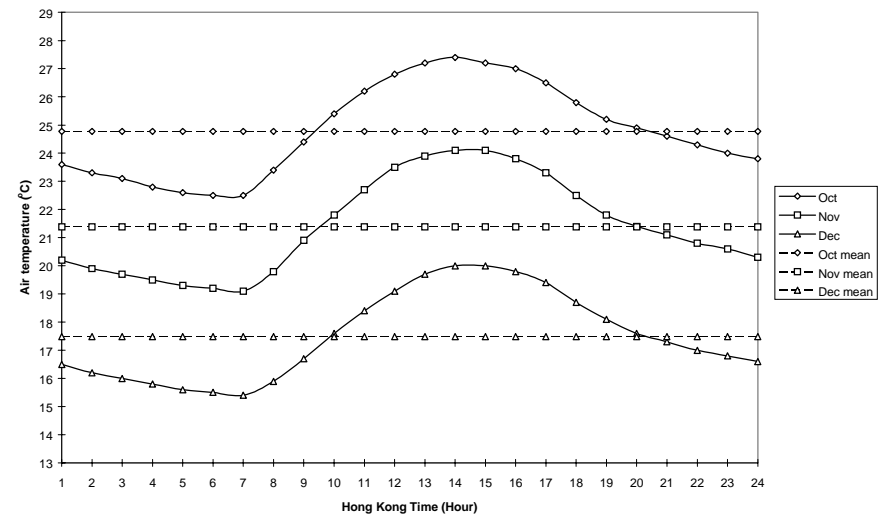
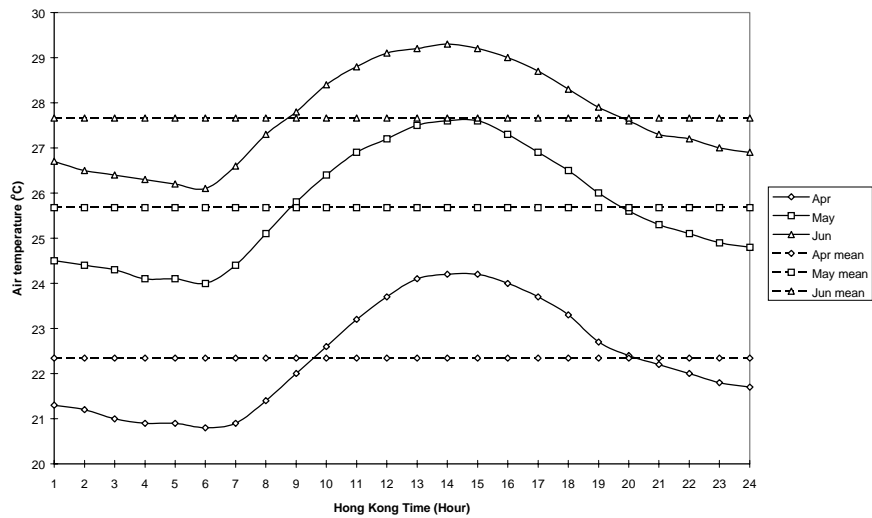
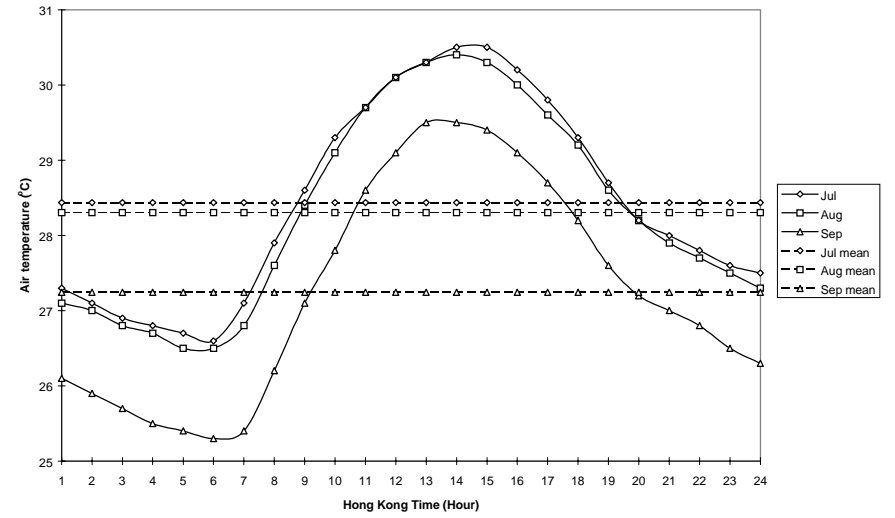
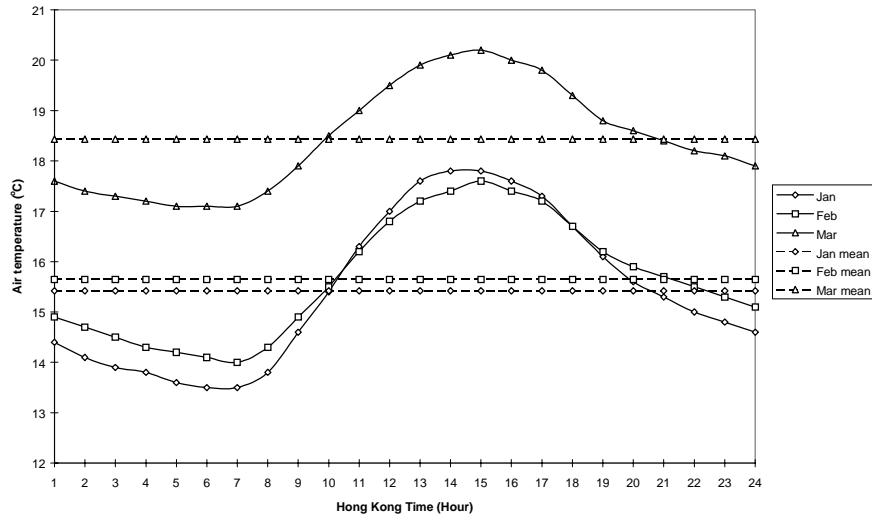


Fig. 9. Diurnal variation of air temperature at Tai Po Kau, 1991 - 1998

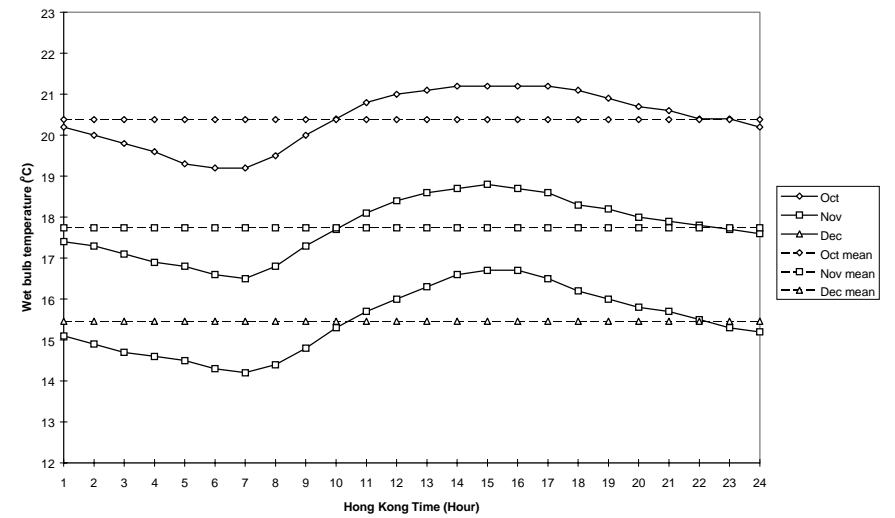
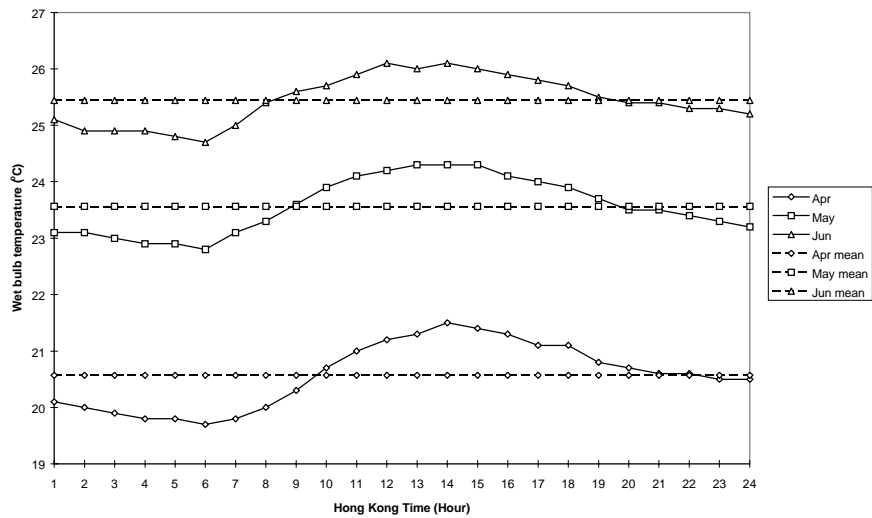
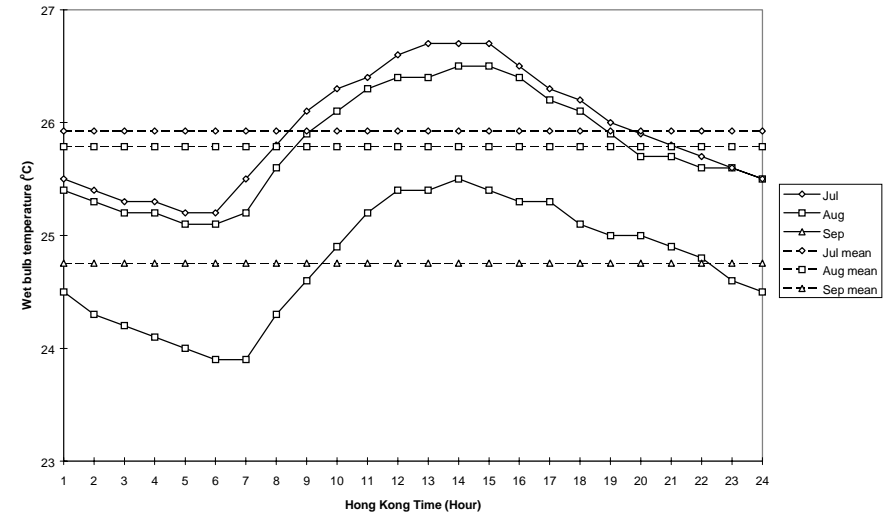
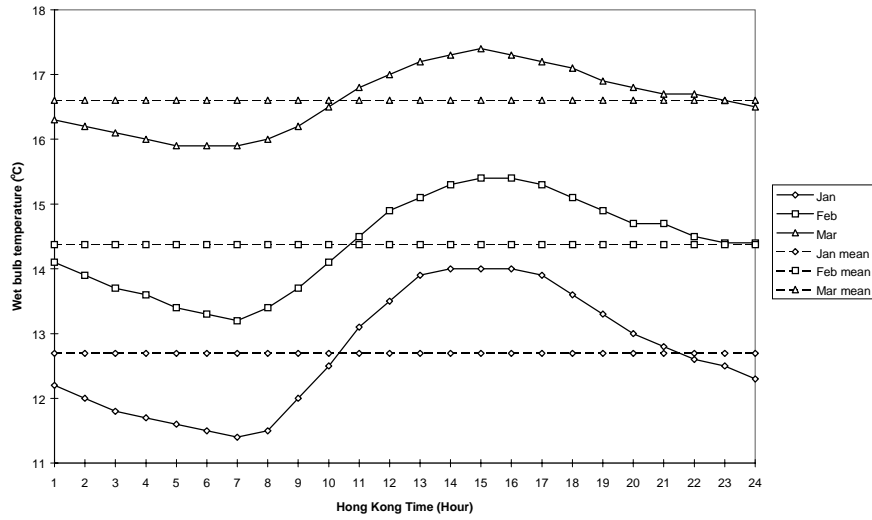


Fig. 10. Diurnal variation of wet-bulb temperature at Tai Po Kau, 1991 - 1994

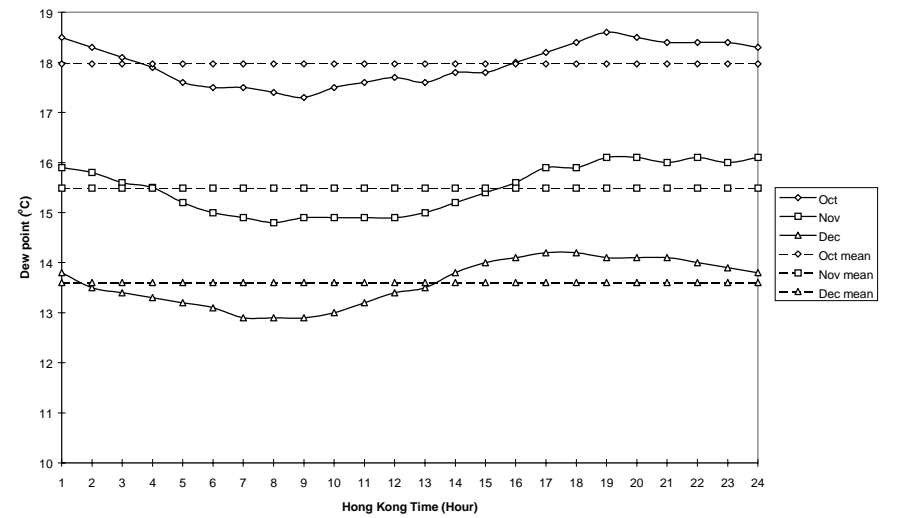
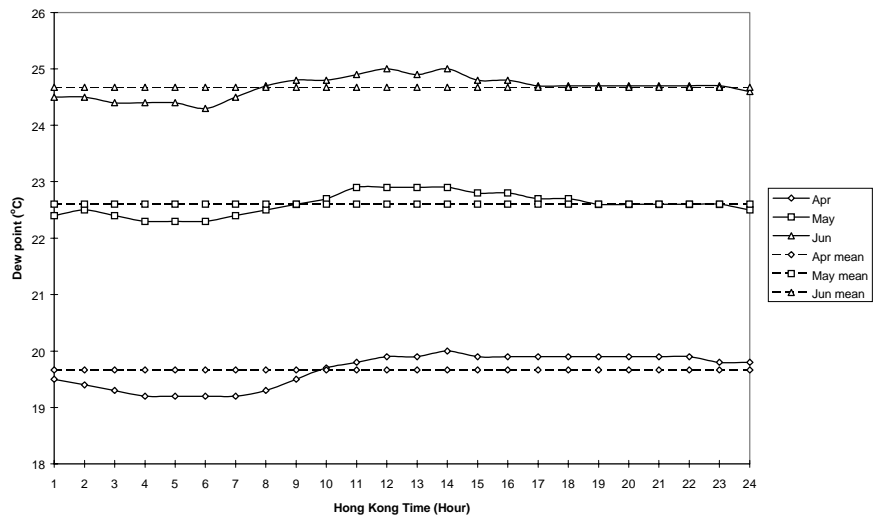
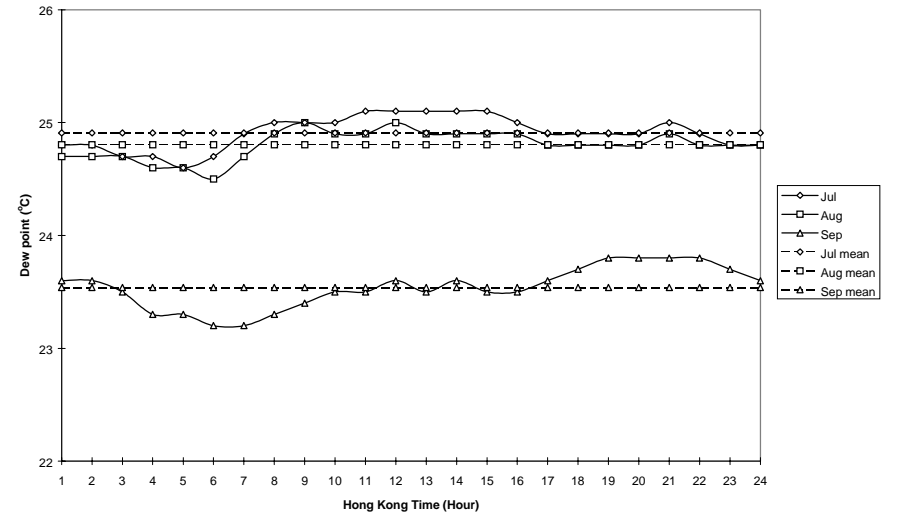
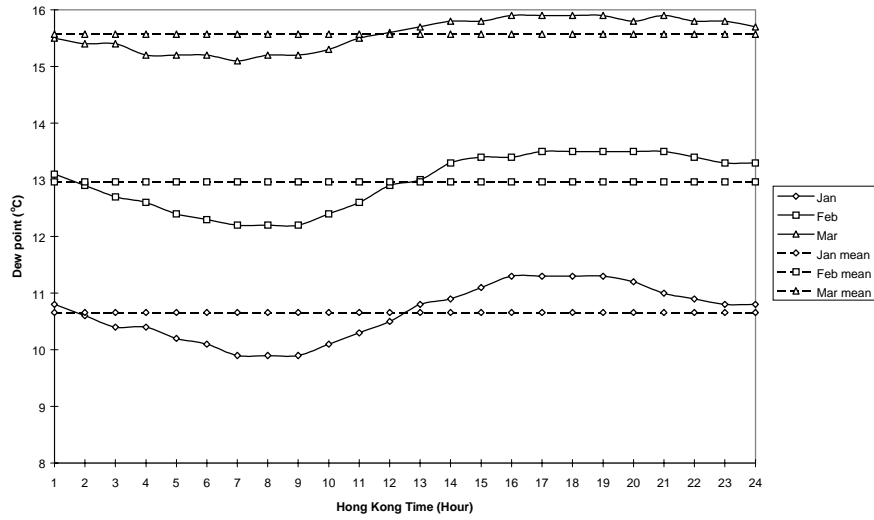


Fig. 11. Diurnal variation of dew point at Tai Po Kau, 1991 - 1994



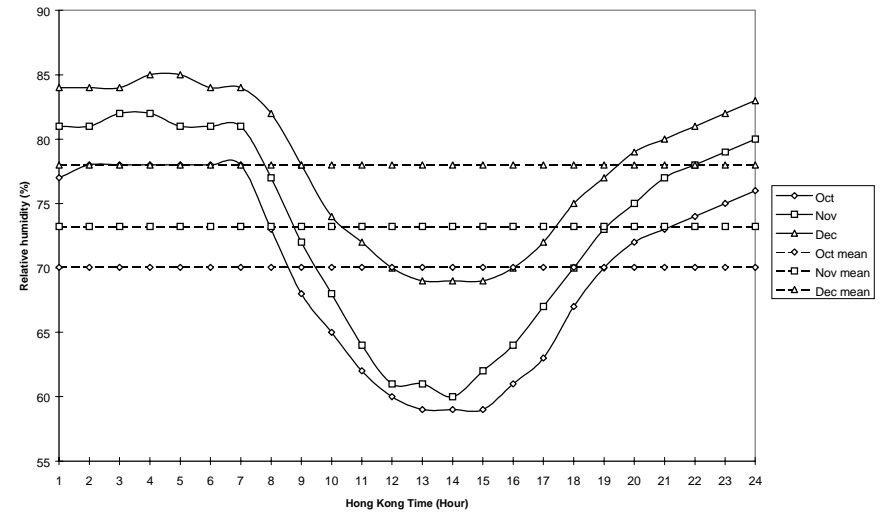
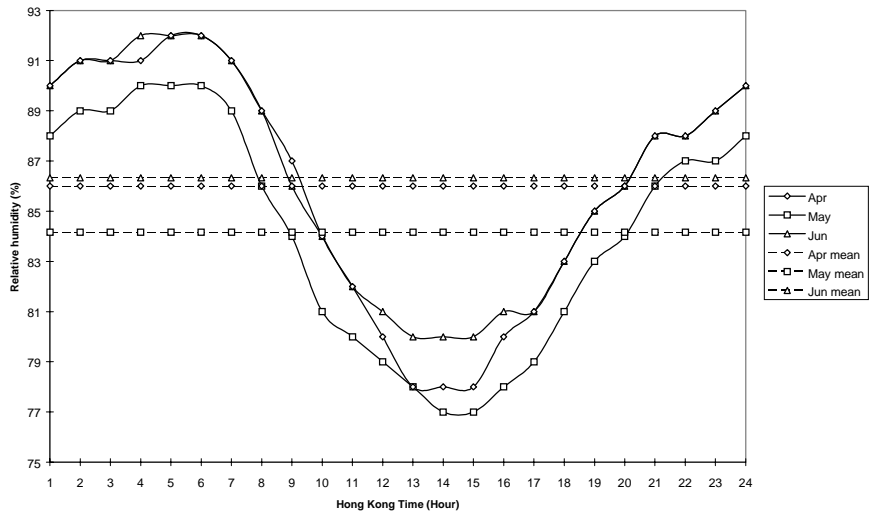
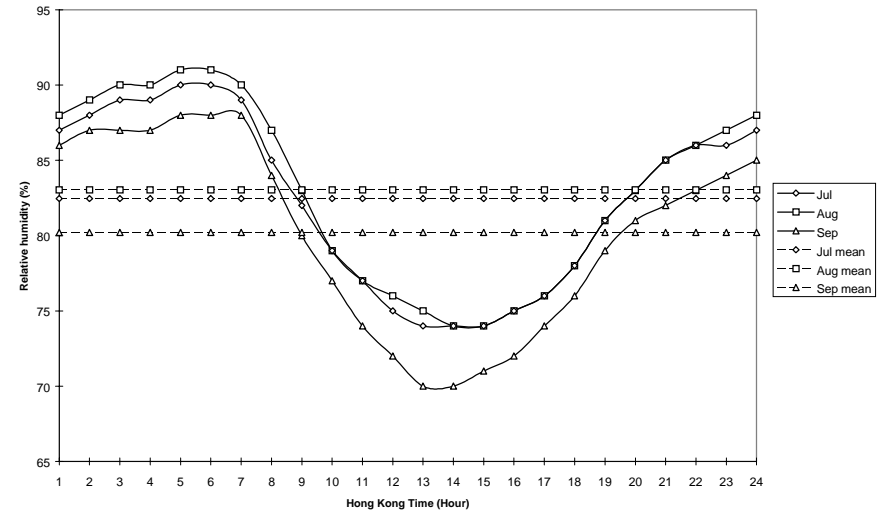
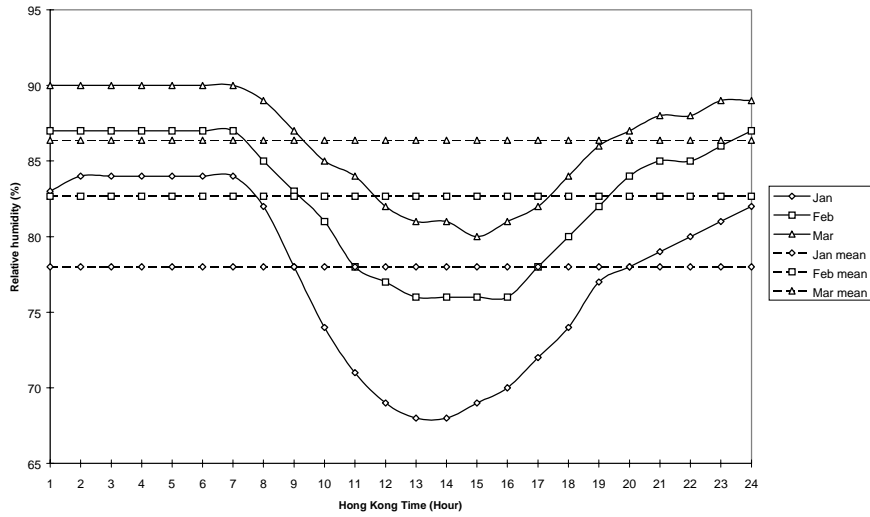


Fig. 12. Diurnal variation of relative humidity at Tai Po Kau, 1991 - 1994

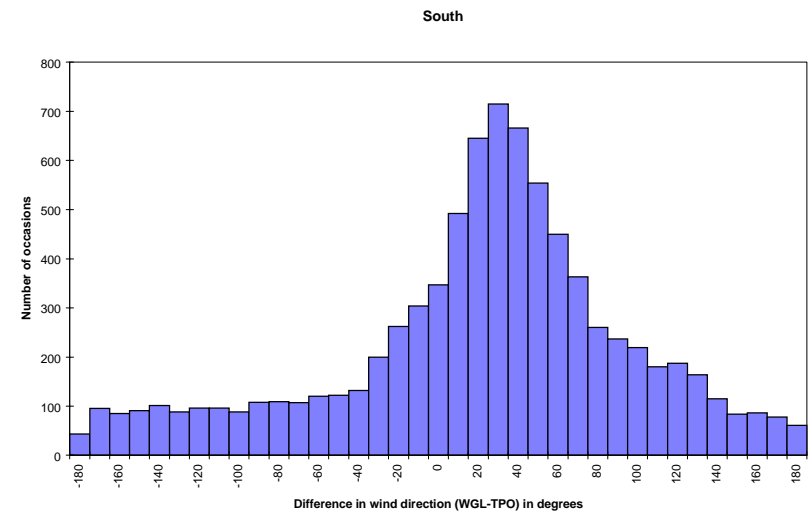
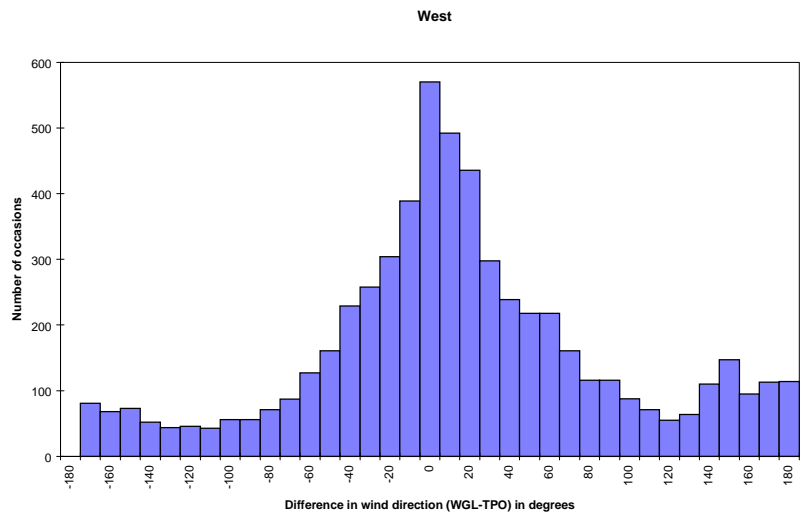
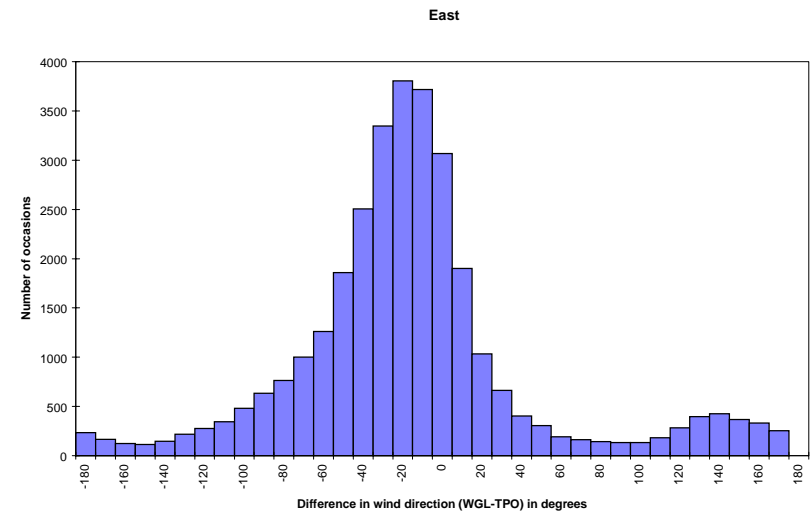
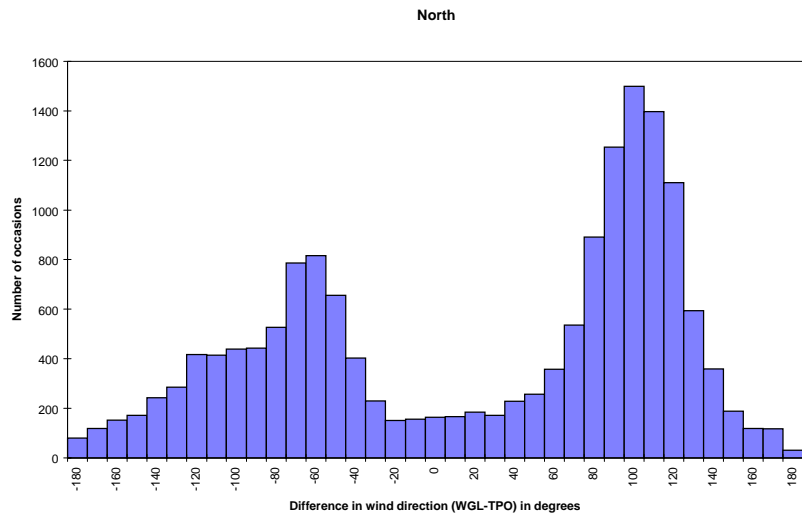


Fig. 13. Frequency distribution of the difference in hourly mean wind directions between Tai Po Kau (TPO) and Waglan Island (WGL), grouped according to the wind direction at Waglan Island.

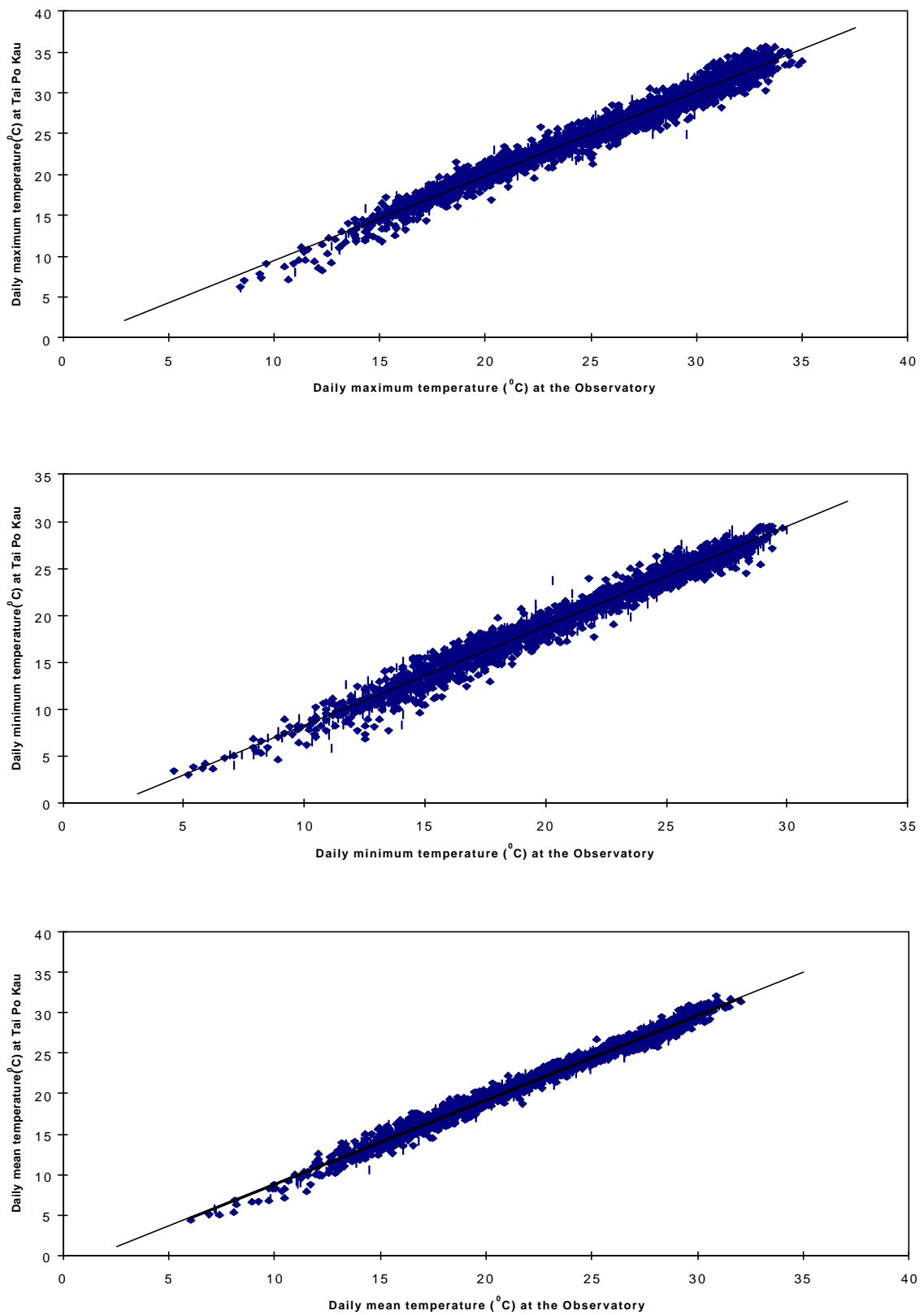


Fig. 14. Comparison of daily maximum, minimum and mean temperatures between Tai Po Kau and the Observatory.

TABLE 1

## CLIMATOLOGICAL SUMMARY FOR TAI PO KAU, 1991-1998

Month	Air Temperature							Wet Bulb * Temperature °C	Dew * Point °C	Relative * Humidity %
	24-hour Mean °C	Mean Daily		Absolute Extremes						
		Maximum °C	Minimum °C	Maximum °C	Date	Minimum °C	Date			
January	15.4	18.6	12.8	26.2	11/01/98	3.6	18/01/93	12.7	10.7	78
February	15.7	18.3	13.4	27.0	15/02/96	3.7	21/02/96	14.4	13.0	83
March	18.4	21.0	16.3	29.3	28/03/93	8.1	07/03/92	16.6	15.6	86
April	22.3	25.1	20.2	31.4	20,26/04/94	9.9	03/04/96	20.6	19.7	86
May	25.7	28.4	23.5	34.1	26/05/91	17.7	03/05/91	23.6	22.6	84
June	27.6	30.2	25.6	35.2	07/06/96	20.8	08/06/92	25.4	24.7	86
July	28.4	31.3	26.1	35.6	02/07/94	21.7	08/07/92	25.9	24.9	82
August	28.3	31.3	25.8	35.7	04/08/98	23.1	18/08/94	25.8	24.8	83
September	27.2	30.1	24.9	35.0	01/09/92	18.3	21,28,29/09/97	24.8	23.5	80
October	24.8	27.9	22.1	32.0	14/10/98	14.7	31/10/93	20.4	18.0	70
November	21.4	24.7	18.7	30.9	01/11/96	8.4	22/11/93	17.7	15.5	73
December	17.5	20.7	14.8	26.8	03/12/93	3.0	29/12/91	15.5	13.6	78
Year	22.7	25.6	20.4	35.7	04/08/98	3.0	29/12/91	20.3	18.9	81

\* computed from data between 1991 and 1994

TABLE 1 (con't)

Month	Prevailing Wind Direction degrees	Wind speed m/s	Maximum gust m/s	Number of Days with Maximum Temperature				Number of Days with Minimum Temperature				
				>=30°C	>=33°C	>=34°C	>=35°C	<=12°C	<=10°C	<=5°C	<=4°C	<=3°C
January	90	2.7	18.9	-	-	-	-	12.25	6.88	0.63	0.38	-
February	100	2.9	16.7	-	-	-	-	9.00	3.25	0.38	0.13	-
March	100	2.9	15.0	-	-	-	-	4.25	1.00	-	-	-
April	90	2.7	41.8	3.13	-	-	-	0.50	0.13	-	-	-
May	90	2.6	23.4	10.38	1.50	0.13	-	-	-	-	-	-
June	90	2.3	32.5	17.63	4.13	0.63	0.13	-	-	-	-	-
July	120	2.5	32.3	20.88	8.75	3.13	0.75	-	-	-	-	-
August	90	2.4	33.4	20.38	7.00	2.63	0.50	-	-	-	-	-
September	90	2.6	27.6	15.13	2.13	0.50	0.13	-	-	-	-	-
October	100	2.7	28.0	3.75	-	-	-	-	-	-	-	-
November	90	2.6	20.9	0.13	-	-	-	1.00	0.38	-	-	-
December	90	2.5	15.4	-	-	-	-	5.75	2.25	0.25	0.25	0.13
Year	90	2.6	25.5	91.41	23.51	7.02	1.51	32.75	13.89	1.26	0.76	0.13



TABLE 2 (cont'd)

Month	Wind speed	Wind direction ( tens of degrees)											
	(m/s)	2-4	5-7	8-10	11-13	14-16	17-19	20-22	23-25	26-28	29-31	32-34	35-1
September	0.1 - 3.2	2.07	2.22	11.44	7.79	10.81	5.74	4.78	5.20	12.78	3.35	1.72	1.42
	3.3 - 8.2	1.51	2.28	14.14	4.88	0.27	0.02	0.02	0.63	1.45	1.91	1.03	0.67
	8.3 - 14.2	0.15	0.06	1.36	0.10	0.00	0.00	0.00	0.00	0.04	0.10	0.00	0.00
	> 14.2	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
October	0.1 - 3.2	2.90	3.07	13.19	6.53	9.71	7.29	3.77	4.17	9.60	2.11	2.18	1.34
	3.3 - 8.2	2.87	2.16	13.67	5.99	0.20	0.00	0.22	0.65	2.24	2.27	1.52	1.61
	8.3 - 14.2	0.00	0.00	0.31	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
	> 14.2	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
November	0.1 - 3.2	2.07	3.29	14.29	8.02	9.74	5.61	3.29	4.37	12.35	2.84	1.26	1.29
	3.3 - 8.2	2.27	1.94	12.10	4.87	0.25	0.05	0.23	0.79	4.05	1.98	0.92	1.46
	8.3 - 14.2	0.00	0.00	0.52	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
	> 14.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
December	0.1 - 3.2	1.39	3.21	15.02	8.12	9.94	4.63	1.73	4.82	16.01	4.07	1.67	0.77
	3.3 - 8.2	0.39	1.69	10.43	4.33	0.19	0.00	0.00	0.66	6.43	3.53	0.38	0.53
	8.3 - 14.2	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	> 14.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Overall	0.1 - 3.2	1.61	3.56	14.06	9.30	9.81	5.61	3.15	4.63	9.52	3.68	1.98	1.18
	3.3 - 8.2	0.76	2.18	13.30	6.74	0.31	0.05	0.20	0.48	3.15	2.61	0.80	0.49
	8.3 - 14.2	0.04	0.03	0.53	0.11	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02
	> 14.2	0.00	0.01	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

## STATISTICS OF THE OBSERVATIONS OF CALM AND VARIABLE WINDS AT TAI PO KAU, 1991-1998

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Overall
Number of observations	5143	5060	5415	5586	5810	4681	4653	5014	4773	5543	5562	5333	62573
Number of variable winds	2	1	1	0	0	3	0	1	0	0	1	1	10
Percentage of variable winds (%)	0.04	0.02	0.02	0.00	0.00	0.06	0.00	0.02	0.00	0.00	0.02	0.02	0.02
Number of calm winds	0	0	1	0	0	0	0	0	0	4	5	0	10
Percentage of calm winds (%)	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.09	0.00	0.02

TABLE 3

## HOURLY VECTOR MEAN WIND AT TAI PO KAU, 1991 -1998

HOUR	JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		OCT		NOV		DEC	
	dir	spd	dir	spd	dir	spd	dir	spd	dir	spd	dir	spd	dir	spd	dir	spd	dir	spd	dir	spd	dir	spd	dir	spd
0100	156	0.3	110	1.2	103	1.4	104	1.5	113	1.2	120	1.3	120	1.0	113	0.7	114	1.0	115	0.9	126	0.9	159	0.4
0200	146	0.2	112	1.2	105	1.3	103	1.3	112	1.1	130	1.2	120	1.0	119	0.6	115	1.0	121	0.8	129	0.8	172	0.3
0300	152	0.2	116	0.9	106	1.2	106	1.3	112	1.1	133	1.2	125	1.0	127	0.6	114	0.9	124	0.6	140	0.5	191	0.3
0400	230	0.1	111	0.9	108	1.1	106	1.4	108	1.0	132	1.1	127	1.0	132	0.5	120	0.6	129	0.5	145	0.4	214	0.3
0500	207	0.2	115	0.7	111	1.2	107	1.3	105	1.0	133	0.9	133	0.9	150	0.4	125	0.7	138	0.3	153	0.3	215	0.4
0600	198	0.2	121	0.8	112	1.1	105	1.3	110	0.9	132	1.0	126	0.9	147	0.4	119	0.5	138	0.3	159	0.3	216	0.4
0700	212	0.2	124	0.9	112	1.1	109	1.2	107	1.1	123	1.0	129	0.9	139	0.3	114	0.5	147	0.3	191	0.4	211	0.4
0800	176	0.2	120	0.7	108	1.2	96	1.7	94	1.3	118	1.2	114	1.0	94	0.4	88	0.5	107	0.2	149	0.2	205	0.5
0900	110	0.3	104	1.1	99	1.5	91	2.0	88	1.7	116	1.3	105	1.2	74	0.9	77	0.9	73	1.0	79	0.6	188	0.2
1000	80	0.5	96	1.4	94	1.8	88	2.1	89	1.8	119	1.4	106	1.3	77	1.1	71	1.6	72	1.7	75	1.2	80	0.6
1100	75	1.1	89	1.6	89	1.9	88	2.4	85	2.0	119	1.3	107	1.3	75	1.2	73	2.0	74	2.1	75	1.6	79	1.0
1200	69	1.4	91	1.7	88	2.2	87	2.6	84	2.0	120	1.4	114	1.4	79	1.3	75	2.2	74	2.4	77	1.9	78	1.3
1300	70	1.6	86	1.8	87	2.3	90	2.5	90	2.0	125	1.5	114	1.4	81	1.3	80	2.5	77	2.5	76	2.1	81	1.4
1400	71	1.7	83	1.7	87	2.2	91	2.2	94	2.0	129	1.3	115	1.5	89	1.4	81	2.2	78	2.5	77	2.2	83	1.7
1500	65	1.6	88	1.6	86	2.1	92	2.2	95	2.2	133	1.3	119	1.6	92	1.3	82	1.9	78	2.4	77	2.2	83	1.8
1600	72	1.6	90	1.5	88	2.0	93	2.1	95	2.1	131	1.5	127	1.5	98	1.4	88	1.8	78	2.1	77	1.8	84	1.5
1700	80	1.2	94	1.4	94	1.9	95	2.1	95	1.7	134	1.3	128	1.7	113	1.2	100	1.6	85	1.6	85	1.3	85	1.0
1800	87	0.7	97	1.0	97	1.8	99	2.0	97	1.8	133	1.4	129	1.6	121	1.1	107	1.2	97	1.1	105	0.9	98	0.5
1900	129	0.3	107	0.8	100	1.7	105	1.8	101	1.7	130	1.5	124	1.5	117	1.0	120	1.1	109	0.8	121	0.7	152	0.3
2000	173	0.2	110	0.8	101	1.7	104	1.6	104	1.5	126	1.4	120	1.3	119	0.9	121	0.9	107	0.8	123	0.7	158	0.4
2100	160	0.3	108	0.9	104	1.7	104	1.6	107	1.4	124	1.3	118	1.3	112	0.9	122	0.9	100	0.9	119	0.8	159	0.5
2200	135	0.4	111	1.1	105	1.6	103	1.5	106	1.5	126	1.4	118	1.3	113	0.9	117	1.1	102	0.9	117	0.9	147	0.6
2300	139	0.5	114	1.1	106	1.6	104	1.6	109	1.4	121	1.4	120	1.3	124	0.7	114	1.1	107	1.0	118	1.1	150	0.5
2400	140	0.3	112	1.2	104	1.4	104	1.5	109	1.3	119	1.4	121	1.3	122	0.7	114	1.2	111	1.0	121	1.0	152	0.5

dir : wind direction (degree)

spd : wind speed (m/s)



TABLE 4

HOURLY MEAN OF AIR TEMPERATURE (°C) AT TAI PO KAU, 1991-1998

HOUR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0100	14.4	14.9	17.6	21.3	24.5	26.7	27.3	27.1	26.1	23.6	20.2	16.5
0200	14.1	14.7	17.4	21.2	24.4	26.5	27.1	27.0	25.9	23.3	19.9	16.2
0300	13.9	14.5	17.3	21.0	24.3	26.4	26.9	26.8	25.7	23.1	19.7	16.0
0400	13.8	14.3	17.2	20.9	24.1	26.3	26.8	26.7	25.5	22.8	19.5	15.8
0500	13.6	14.2	17.1	20.9	24.1	26.2	26.7	26.5	25.4	22.6	19.3	15.6
0600	13.5	14.1	17.1	20.8	24.0	26.1	26.6	26.5	25.3	22.5	19.2	15.5
0700	13.5	14.0	17.1	20.9	24.4	26.6	27.1	26.8	25.4	22.5	19.1	15.4
0800	13.8	14.3	17.4	21.4	25.1	27.3	27.9	27.6	26.2	23.4	19.8	15.9
0900	14.6	14.9	17.9	22.0	25.8	27.8	28.6	28.4	27.1	24.4	20.9	16.7
1000	15.4	15.5	18.5	22.6	26.4	28.4	29.3	29.1	27.8	25.4	21.8	17.6
1100	16.3	16.2	19.0	23.2	26.9	28.8	29.7	29.7	28.6	26.2	22.7	18.4
1200	17.0	16.8	19.5	23.7	27.2	29.1	30.1	30.1	29.1	26.8	23.5	19.1
1300	17.6	17.2	19.9	24.1	27.5	29.2	30.3	30.3	29.5	27.2	23.9	19.7
1400	17.8	17.4	20.1	24.2	27.6	29.3	30.5	30.4	29.5	27.4	24.1	20.0
1500	17.8	17.6	20.2	24.2	27.6	29.2	30.5	30.3	29.4	27.2	24.1	20.0
1600	17.6	17.4	20.0	24.0	27.3	29.0	30.2	30.0	29.1	27.0	23.8	19.8
1700	17.3	17.2	19.8	23.7	26.9	28.7	29.8	29.6	28.7	26.5	23.3	19.4
1800	16.7	16.7	19.3	23.3	26.5	28.3	29.3	29.2	28.2	25.8	22.5	18.7
1900	16.1	16.2	18.8	22.7	26.0	27.9	28.7	28.6	27.6	25.2	21.8	18.1
2000	15.6	15.9	18.6	22.4	25.6	27.6	28.2	28.2	27.2	24.9	21.4	17.6
2100	15.3	15.7	18.4	22.2	25.3	27.3	28.0	27.9	27.0	24.6	21.1	17.3
2200	15.0	15.5	18.2	22.0	25.1	27.2	27.8	27.7	26.8	24.3	20.8	17.0
2300	14.8	15.3	18.1	21.8	24.9	27.0	27.6	27.5	26.5	24.0	20.6	16.8
2400	14.6	15.1	17.9	21.7	24.8	26.9	27.5	27.3	26.3	23.8	20.3	16.6
MEAN	15.4	15.7	18.4	22.3	25.7	27.6	28.4	28.3	27.2	24.8	21.4	17.5

TABLE 5

HOURLY MEAN OF WET BULB TEMPERATURE (°C) AT TAI PO KAU, 1991-1994

HOUR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0100	12.2	14.1	16.3	20.1	23.1	25.1	25.5	25.4	24.5	20.2	17.4	15.1
0200	12.0	13.9	16.2	20.0	23.1	24.9	25.4	25.3	24.3	20.0	17.3	14.9
0300	11.8	13.7	16.1	19.9	23.0	24.9	25.3	25.2	24.2	19.8	17.1	14.7
0400	11.7	13.6	16.0	19.8	22.9	24.9	25.3	25.2	24.1	19.6	16.9	14.6
0500	11.6	13.4	15.9	19.8	22.9	24.8	25.2	25.1	24.0	19.3	16.8	14.5
0600	11.5	13.3	15.9	19.7	22.8	24.7	25.2	25.1	23.9	19.2	16.6	14.3
0700	11.4	13.2	15.9	19.8	23.1	25.0	25.5	25.2	23.9	19.2	16.5	14.2
0800	11.5	13.4	16.0	20.0	23.3	25.4	25.8	25.6	24.3	19.5	16.8	14.4
0900	12.0	13.7	16.2	20.3	23.6	25.6	26.1	25.9	24.6	20.0	17.3	14.8
1000	12.5	14.1	16.5	20.7	23.9	25.7	26.3	26.1	24.9	20.4	17.7	15.3
1100	13.1	14.5	16.8	21.0	24.1	25.9	26.4	26.3	25.2	20.8	18.1	15.7
1200	13.5	14.9	17.0	21.2	24.2	26.1	26.6	26.4	25.4	21.0	18.4	16.0
1300	13.9	15.1	17.2	21.3	24.3	26.0	26.7	26.4	25.4	21.1	18.6	16.3
1400	14.0	15.3	17.3	21.5	24.3	26.1	26.7	26.5	25.5	21.2	18.7	16.6
1500	14.0	15.4	17.4	21.4	24.3	26.0	26.7	26.5	25.4	21.2	18.8	16.7
1600	14.0	15.4	17.3	21.3	24.1	25.9	26.5	26.4	25.3	21.2	18.7	16.7
1700	13.9	15.3	17.2	21.1	24.0	25.8	26.3	26.2	25.3	21.2	18.6	16.5
1800	13.6	15.1	17.1	21.1	23.9	25.7	26.2	26.1	25.1	21.1	18.3	16.2
1900	13.3	14.9	16.9	20.8	23.7	25.5	26.0	25.9	25.0	20.9	18.2	16.0
2000	13.0	14.7	16.8	20.7	23.5	25.4	25.9	25.7	25.0	20.7	18.0	15.8
2100	12.8	14.7	16.7	20.6	23.5	25.4	25.8	25.7	24.9	20.6	17.9	15.7
2200	12.6	14.5	16.7	20.6	23.4	25.3	25.7	25.6	24.8	20.4	17.8	15.5
2300	12.5	14.4	16.6	20.5	23.3	25.3	25.6	25.6	24.6	20.4	17.7	15.3
2400	12.3	14.4	16.5	20.5	23.2	25.2	25.5	25.5	24.5	20.2	17.6	15.2
MEAN	12.7	14.4	16.6	20.6	23.6	25.4	25.9	25.8	24.8	20.4	17.7	15.5

TABLE 6

HOURLY MEAN OF DEW POINT (°C) AT TAI PO KAU, 1991-1994

HOUR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0100	10.8	13.1	15.5	19.5	22.4	24.5	24.8	24.7	23.6	18.5	15.9	13.8
0200	10.6	12.9	15.4	19.4	22.5	24.5	24.8	24.7	23.6	18.3	15.8	13.5
0300	10.4	12.7	15.4	19.3	22.4	24.4	24.7	24.7	23.5	18.1	15.6	13.4
0400	10.4	12.6	15.2	19.2	22.3	24.4	24.7	24.6	23.3	17.9	15.5	13.3
0500	10.2	12.4	15.2	19.2	22.3	24.4	24.6	24.6	23.3	17.6	15.2	13.2
0600	10.1	12.3	15.2	19.2	22.3	24.3	24.7	24.5	23.2	17.5	15.0	13.1
0700	9.9	12.2	15.1	19.2	22.4	24.5	24.9	24.7	23.2	17.5	14.9	12.9
0800	9.9	12.2	15.2	19.3	22.5	24.7	25.0	24.9	23.3	17.4	14.8	12.9
0900	9.9	12.2	15.2	19.5	22.6	24.8	25.0	25.0	23.4	17.3	14.9	12.9
1000	10.1	12.4	15.3	19.7	22.7	24.8	25.0	24.9	23.5	17.5	14.9	13.0
1100	10.3	12.6	15.5	19.8	22.9	24.9	25.1	24.9	23.5	17.6	14.9	13.2
1200	10.5	12.9	15.6	19.9	22.9	25.0	25.1	25.0	23.6	17.7	14.9	13.4
1300	10.8	13.0	15.7	19.9	22.9	24.9	25.1	24.9	23.5	17.6	15.0	13.5
1400	10.9	13.3	15.8	20.0	22.9	25.0	25.1	24.9	23.6	17.8	15.2	13.8
1500	11.1	13.4	15.8	19.9	22.8	24.8	25.1	24.9	23.5	17.8	15.4	14.0
1600	11.3	13.4	15.9	19.9	22.8	24.8	25.0	24.9	23.5	18.0	15.6	14.1
1700	11.3	13.5	15.9	19.9	22.7	24.7	24.9	24.8	23.6	18.2	15.9	14.2
1800	11.3	13.5	15.9	19.9	22.7	24.7	24.9	24.8	23.7	18.4	15.9	14.2
1900	11.3	13.5	15.9	19.9	22.6	24.7	24.9	24.8	23.8	18.6	16.1	14.1
2000	11.2	13.5	15.8	19.9	22.6	24.7	24.9	24.8	23.8	18.5	16.1	14.1
2100	11.0	13.5	15.9	19.9	22.6	24.7	25.0	24.9	23.8	18.4	16.0	14.1
2200	10.9	13.4	15.8	19.9	22.6	24.7	24.9	24.8	23.8	18.4	16.1	14.0
2300	10.8	13.3	15.8	19.8	22.6	24.7	24.8	24.8	23.7	18.4	16.0	13.9
2400	10.8	13.3	15.7	19.8	22.5	24.6	24.8	24.8	23.6	18.3	16.1	13.8
MEAN	10.7	13.0	15.6	19.7	22.6	24.7	24.9	24.8	23.5	18.0	15.5	13.6

TABLE 7

HOURLY MEAN OF RELATIVE HUMIDITY (%) AT TAI PO KAU, 1991-1994

HOUR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0100	83	87	90	90	88	90	87	88	86	77	81	84
0200	84	87	90	91	89	91	88	89	87	78	81	84
0300	84	87	90	91	89	91	89	90	87	78	82	84
0400	84	87	90	91	90	92	89	90	87	78	82	85
0500	84	87	90	92	90	92	90	91	88	78	81	85
0600	84	87	90	92	90	92	90	91	88	78	81	84
0700	84	87	90	91	89	91	89	90	88	78	81	84
0800	82	85	89	89	86	89	85	87	84	73	77	82
0900	78	83	87	87	84	86	82	83	80	68	72	78
1000	74	81	85	84	81	84	79	79	77	65	68	74
1100	71	78	84	82	80	82	77	77	74	62	64	72
1200	69	77	82	80	79	81	75	76	72	60	61	70
1300	68	76	81	78	78	80	74	75	70	59	61	69
1400	68	76	81	78	77	80	74	74	70	59	60	69
1500	69	76	80	78	77	80	74	74	71	59	62	69
1600	70	76	81	80	78	81	75	75	72	61	64	70
1700	72	78	82	81	79	81	76	76	74	63	67	72
1800	74	80	84	83	81	83	78	78	76	67	70	75
1900	77	82	86	85	83	85	81	81	79	70	73	77
2000	78	84	87	86	84	86	83	83	81	72	75	79
2100	79	85	88	88	86	88	85	85	82	73	77	80
2200	80	85	88	88	87	88	86	86	83	74	78	81
2300	81	86	89	89	87	89	86	87	84	75	79	82
2400	82	87	89	90	88	90	87	88	85	76	80	83
MEAN	78	83	86	86	84	86	82	83	80	70	73	78

TABLE 8

## EXTREME VALUES OF TEMPERATURE AND GUST AT TAI PO KAU, 1991-1998

Rank	Daily Temperature				Maximum Gust		
	Maximum °C	Date	Minimum °C	Date	Hourly m/s	Time	
1	35.7	04/08/98	3.0	29/12/91	33.4	21	02/08/97
2	35.6	07/08/92	3.4	28/12/91	32.5	19	27/06/93
3	35.6	02/07/94	3.6	18/01/93	32.3	06	24/07/91
4	35.5	29/08/97	3.7	21/02/96	32.0	17	27/06/93
5	35.2	29/07/93	3.8	16/01/93	31.7	19	02/08/97
6	35.2	07/06/96	4.0	17/01/93	31.2	16	27/06/93
7	35.2	21/07/95	4.2	20/02/96	30.7	18	27/06/93
8	35.1	10/07/94	4.6	29/01/93	29.5	20	27/06/93
9	35.1	26/07/96	4.8	15/01/93	29.1	21	27/06/93
10	35.0	01/09/92	5.0	22/02/96	28.7	03	24/07/91
11	35.0	11/07/94	5.1	19/01/93	28.5	14	27/06/93
12	35.0	19/08/97	5.1	19/02/96	28.1	05	24/07/91
13	34.9	20/07/95	5.1	24/01/93	28.0	05	03/10/95
14	34.9	01/08/98	5.3	30/12/91	27.7	06	03/10/95
15	34.9	10/07/98	5.4	15/01/92	27.7	21	20/08/93
16	34.8	19/08/98	5.5	25/01/93	27.6	03	09/09/96
17	34.7	04/08/92	5.8	30/01/93	27.5	16	02/08/97
18	34.7	01/07/94	5.9	23/01/93	27.2	02	24/07/91
19	34.7	02/08/98	5.9	23/02/96	27.2	14	15/08/91
20	34.7	31/07/98	6.1	24/02/96	27.2	22	27/06/93
*	35.0	30/08/92	4.6	28/12/91	37.5	16	27/06/93

\* : extreme values recorded at the Hong Kong Observatory during 1991-1998